

Land Product Validation (LPV) Sub-group Meeting



Fernando Camacho – (EOLab/U. Valencia) – Chair

Vice Chair – Vacant

Subgroup meeting

10 Sep 2019

NEXT LPV TELECON 05 Nov 2019

Attendance

Participants

Fernando Camacho
Jaime Nickeson
Zhuosen Wang
Sylvain Leblanc
Michael Cosh
Pontus Olofsson
Gareth Roberts
Frank Göttsche
Laura Duncanson
Thomas Nagler
Hongliang Fang

Excused

Glynn Hulley
Sophie Bontemps
Luigi Boschetti
Andrew Edwards
Jadu Dash
Ian Grant
Joshua Gray
Marie Weiss
Carsten Montzka

Absent

Tomoaki Miura
John Armston
Mat Disney
Dominique Carrer

Proposed agenda items

- Welcome
- Status of Working Group
- WGCV Report from Perth
- Web Site and Listserv review and update
- Focus Area Reporting

Status of Working Group

Please talk up LPV at your meetings and with colleagues, try to get more of them involved by joining the listservs which will eventually help to increase our pool of candidates!!!

Volunteer your name if you are non-European and interested in Vice Chair position. You have the best access to the validation community. Position details are included in 10-Jul telecon notes). There are two new people we have invited to consider the position, but have not heard back yet.

Still need a volunteer to help with **Snow**, but consider the Biophysical focus area leads filled.

45th WGCV Meeting in Perth (1/3)

Key Outcomes

- The concept for a new Australian supersite to support multi-mission SAR calibration was presented and discussed. An action was taken to scope out exact requirements, plan, timelines, etc. for discussion at the SAR subgroup meeting in November.
- The Geoscience Australia (GA) **Guideline for Ground Surface Reflectance Validation Measurements and Uncertainty Quantification** was presented. WGCV will do a review of the document, submit it to close CEOS Work Plan Task CV-17 and then take this forward within **WGCV and create global protocols (LPV/IVOS) for CEOS to endorsement (new task)**.
- The WGCV CARD4L (CEOS Analysis Ready Data for Land) peer review process presented was agreed. An initial pool of reviewers were also identified. WGCV is now in a position to peer review the CARD4L self-assessments (Surface Reflectance first products to review). **If any LPV member is interested in be part of the pool, please contact me asap.**

45th WGCV Meeting in Perth (2/3)

- WGCV will be proactive in engaging in the GHG Roadmap development. The WGCV Vice Chair will connect with the AC-VC and WGClimate GHG Task Team to ensure that the cal/val requirements in the GHG Roadmap are developed in coordination with WGCV (IVOS).
- The new Cal/Val Portal will be made live at the end of October.
- The Terrain Mapping Subgroup (TMSG) was renewed with Peter Strobl/EC as the lead. The first task will be to develop the DEMIX (DEM intercomparison) task that was proposed during the meeting for the next CEOS WP.
- Next meeting: WGCV-46 is targeted for 23-27 March 2020 at Caltech, Pasadena.

45th WGCV Meeting in Perth (3/3)

LPV Actions

WGCV-45-03	Fernando Camacho to connect with Mirko Karan regarding linking the WGCV Portal to the various TERN resources.	
WGCV-45-08	Everyone who is non-EU to consider nominating for the LPV Vice Chair role that has become vacant.	
WGCV-45-12	Philippe Goryl and Fernando Camacho to prepare a BRIX2 CEOS Work Plan Task/Deliverable for the next iteration of the CEOS Work Plan.	September 2019
WGCV-45-32	LPV Chair and IVOS Chair to convene a group (including Tim Malthus as a third co-lead) to confirm the specifics of the new surface reflectance validation protocol task (including a formal CEOS Work Plan Task/Deliverable) for review and endorsement by WGCV via email.	End September

→ Clement Albinet (esa)
& LPV Biomass leads

→ New SR task aligned with
ESA FRM4Veg- Phase 2
and GA activities

Annual Web Site and Listserv Review

- We are well beyond our annual due date, target was June! Some focus areas still need review.
- New content not required, but review of current content is.
- All focus areas have received input needed to complete the updates.
- Please verify listserv information is current! If you know a colleague on your listserv that has moved institutions or retired, please update their affiliation. Add colleagues not currently on your list.
- Please lets get this **DONE** before we meet again!!

Update Status

2019 Web Site Update Status by Focus Area

Focus Area	Letter sent to leads	Home Page Review / Update	Products Reviewed/ Updated	Collaboration Review/ Update	References Updated	Listserv review/ update	Letters to community
Landcover	Apr 2019						
Biophysical LAI/F _{par}	Apr 2019	July 2019	July 2019	July 2019	July 2019		Sept 2019
Surface Rad/Albedo	Apr 2019		May 2019				
LST/Emissivity	Apr 2019	Apr 2019	Apr 2019	Apr 2019	Apr 2019	Apr 2019	
Fire/Burn	Apr 2019						
Soil Moisture	Apr 2019		Feb 2019				
Phenology	Apr 2019						
Snow Cover	Apr 2019						
Vegetation Index	Apr 2019		May 2019		May 2019		
Biomass	Apr 2019	Apr 2019	N/A	Apr 2019	Apr 2019		

Focus Area Reports

- Biophysical (LAI/FAPAR)
- Fire/Burn Area
- Phenology
- LST&E
- Surface radiation
- Soil Moisture
- Vegetation Indices
- Snow
- Biomass
- Land Cover

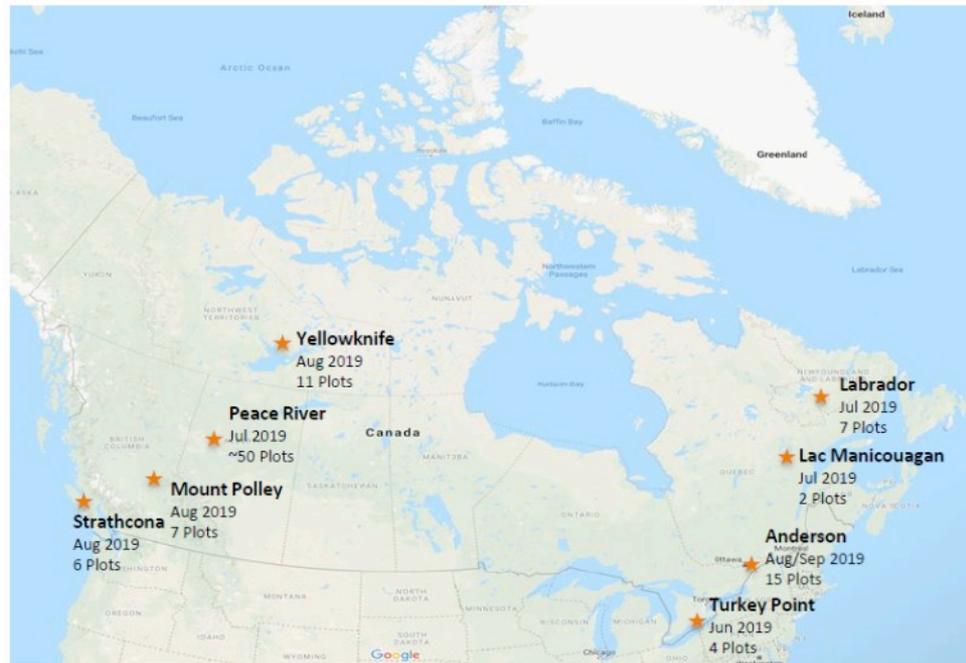
Biophysical (1/2)

- LAI/FAPAR focus areas merged back into Biophysical focus area. New website tested and launched.
- Biophysical newsletter about to be sent to the email list.
- Special LAI/FAPAR session in Yokohoma, Japan (IGARSS'19)
 - Five oral presentations (5) with ~60 participants.
- Biophysical focus area assembly in Yokohoma, Japan
 - One hour discussion about quality requirement, definitions, transfer functions, and reference database (~40 participants)
- Focus area lead Dr. M. Weiss serves as EiC of *Remote Sensing of Environment*.
- CDR LAI and FAPAR (v1.0) with full uncertainty, are available at the [Climate Change Service Climate Data Store](#). EOLAB performed the validation.
- CCRS measured peak season LAI, fCOVER and fAPAR with DHP in 2019. Processing starts in September with publication by end of year. Most sites have coincident high resolution UAV images.

Biophysical (2/2)

Vegetation Parameter Field Measurement 2019

(NRCan/SPRS/CCMEO/CCRS)



Natural Resources
Canada

Ressources naturelles
Canada

Canada

Fire/Burned Area

Recent validation activities

- August 2019 : South Africa
 - Sentinel-3 and SEVIRI FRP validation
- Possible campaigns in Canada and South Africa in 2020



Focus Area Updates

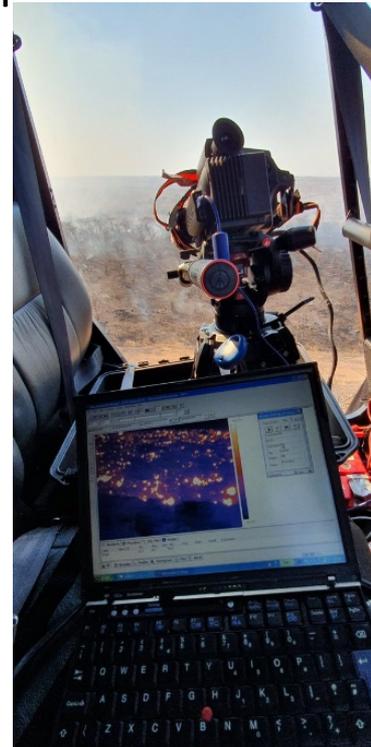
- Website, recent publications and new burned area products updated

GOFC-GOLD Fire-IT meeting (Rome, 1-3rd October, 2019)

- Engage with burned area and active fire product developers and the user community
 - Session on 'BA mapping and Validation'

Validation Protocol

- Working on a validation paper that will form the basis for the active fire and FRP validation protocol
 - Protocol draft due 2021



Phenology

- Victor getting up-to-speed; hand-off from Jadu
- Josh and Victor working on template of validation protocol; anticipated draft by December 2019
- Current work assessing the HLS phenology product from Friedl group
- Tracking new papers concerning LSP validation
- Website updates to Jaime by end of this week

LST & Emissivity

- 2019 Fall AGU Meeting Session (San Francisco, Dec 2019): ‘Taking the temperature of the Earth: uncertainties, trends, and applications across all Earth surface domains’. (session title: GC078; abstract deadline: 31 July 2019)
- LST CCI User Workshop: 24-26 June 2020 at Met Office, UK
- Recent Advances in Quantitative Remote Sensing (RAQRS 2020): Symposium organized by the University of Valencia, Spain. 21-25 September 2020, Abstract Deadline: 1 March 2020 <http://ipl.uv.es/raqrs>
- Closed ITT for Copernicus Space Component Validation for **Land Surface Temperature**, Aerosol Optical Depth and Water Vapour Sentinel-3 Products: includes **new** in-situ LST stations

Surface Radiation (1/2)

Protocol

Migration of EOLAB albedo validation tool to an on-line platform (F. Camacho).

Fieldwork

MALIBU: The difference between MALIBU and *in-situ* albedo is less than 0.015 at Santa Rita NEON site.

Products

Web site list of radiation products (including downwelling radiation) will be updated soon

New product:

- C3S Albedo products (SPOT/VGT + PROBA-V, 1997-now), developed by Meteo-France and VITO and validated by EOLAB.
(<https://cds.climate.copernicus.eu/cdsapp#!/dataset/satellite-albedo?tab=overview>)

<https://agu.confex.com/agu/fm19/prelim.cgi/Session/78678>

Surface Radiation (2/2)

Meetings

Past Meetings:

- I. Grant – CEOS WGCV-45, (Downwelling Radiation validation protocol)
- Z. Wang – IGARSS (Evaluate VIIRS albedo product using MALIBU and in-situ albedo measurements)

Upcoming meetings:

- D. Carrer - Joint EUMETSAT/AMS/NOAA Conference in Boston
- D. Carrer - AGU 2019 -

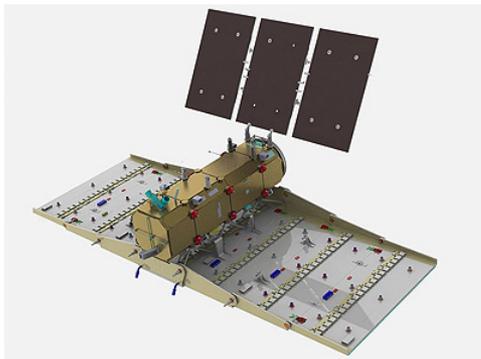
Soil Moisture (1/2)

SMAP

- SMAP incident resolved, data is fully back on line as of July 23rd. No data from June 19-July 23rd.
- Field Experiment: SMAPVEX19/20 will support vegetation water content product as well.

NISAR

- The NASA-ISRO Synthetic Aperture Radar mission (~2022) will monitor in L-band via radar at a high resolution (~100m) nominally every 12 days (2 overpasses/12 days).
- L+S ASAR flights
- Science Team Selections, 3 with soil moisture focus.



Soil Moisture (2/2)

Other

- U.S. National Soil Moisture Network Strategy document in development, ½ complete.
- Good Practices Protocol: Assignments accepted and due by mid September. 1/3 complete.

Workshops/Meetings

- National Soil Moisture Workshop (U.S.) August 12-13, 2020, Beltsville, MD.
- 6th Satellite Soil Moisture Validation and Application Workshop, Sept 15-17, 2020, Perugia, Italy ([site](#))
- 7th Satellite Soil Moisture Validation and Application Workshop, Fall 2022, New Orleans, USA

Vegetation Indices (1/2)

- Update of the website
- Discussion on intercomparison exercise between VIIRS, PROBA-V and Sentinel-3
- Selection of in situ sites from VI validation

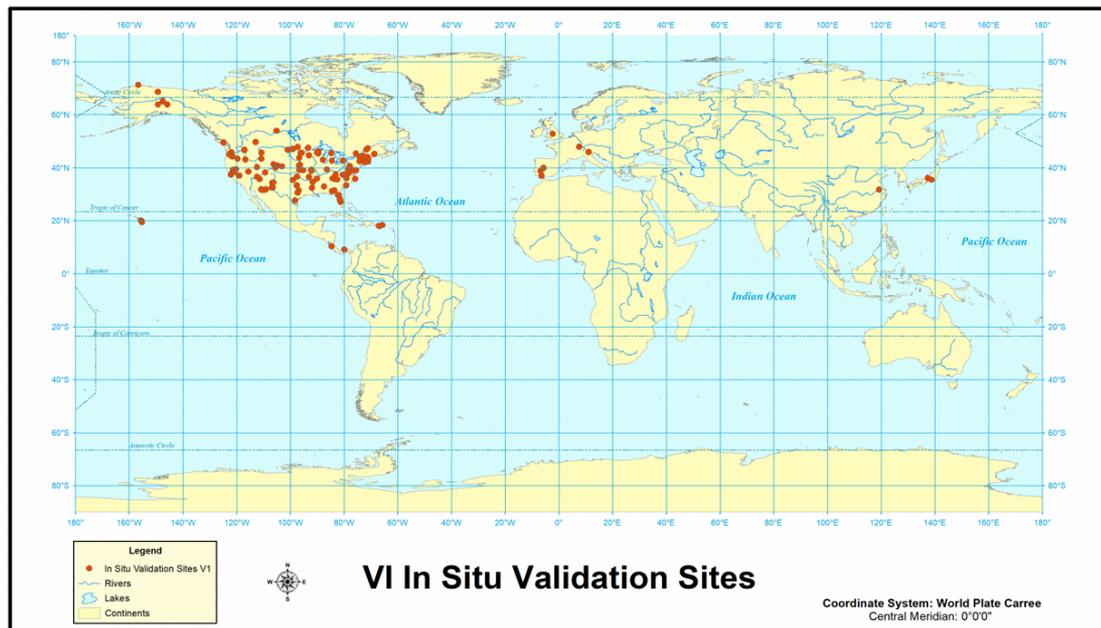
Networks checked and initial number of sites selected:

AmeriFlux: 3 sites

Phenological Eyes Network (PEN): 3 sites

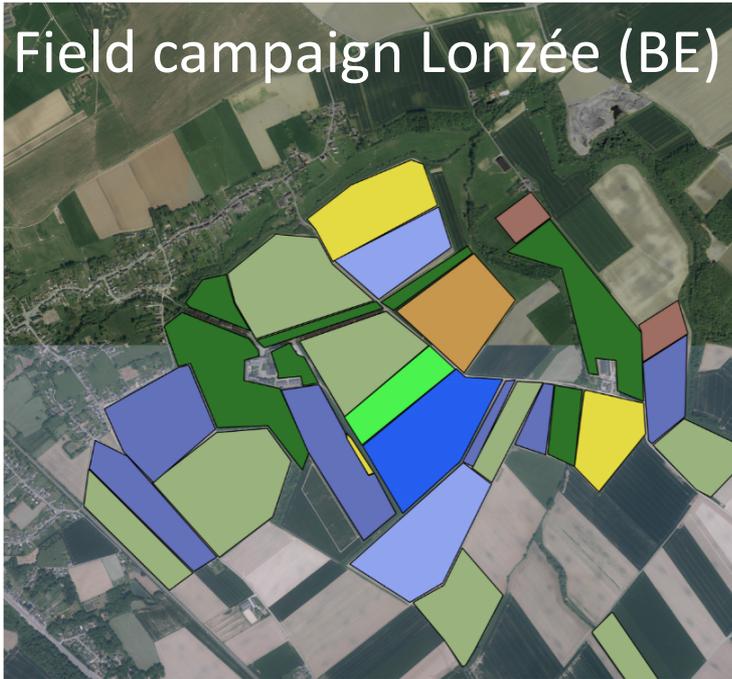
PhenoCam: 228 sites

***All these sites are “active” and make their data available real or near-real time



Vegetation Indices (2/2)

Field campaign Lonzée (BE)



23/08/2019

DHP:

LAI

fAPAR

fCover



Snow (1/2)

Projects

- GlobLand: Daily NRT Snow Services running: Daily Pan-European Snow Extent (500m), Northern Hemispheric Snow Extent (1km) ; in preparation: Global Snow Extent Service using S3 SLSTR; Validation uses HR snow extent products and in situ data (following SnowPEX protocols)
- Snow CCI – PI: ENVEO + 10 Partners. New Datasets, daily snow extent (fractional), global, from 1981 onwards, derived from MODIS and AVHRR, Validation based on SnowPEX protocols ongoing
- SEOM S14Sci – Sentinel-1 SAR Wet Snow Mapping: Melt extent and snow cover from SAR and optical satellite data. Validation of melt extent challenging, uses LST maps, in situ met data, etc.
- High Resolution Snow Extent Service for Europe from Sentinel-2 (by EEA): covers Europe, in development and implementation.
- EUMETDSAT SEDOS started: aims to prepare for snow extent prototype software for METIMAGE; demonstrated with S3 SLSTR

Snow (2/2)

Projects (cont'd)

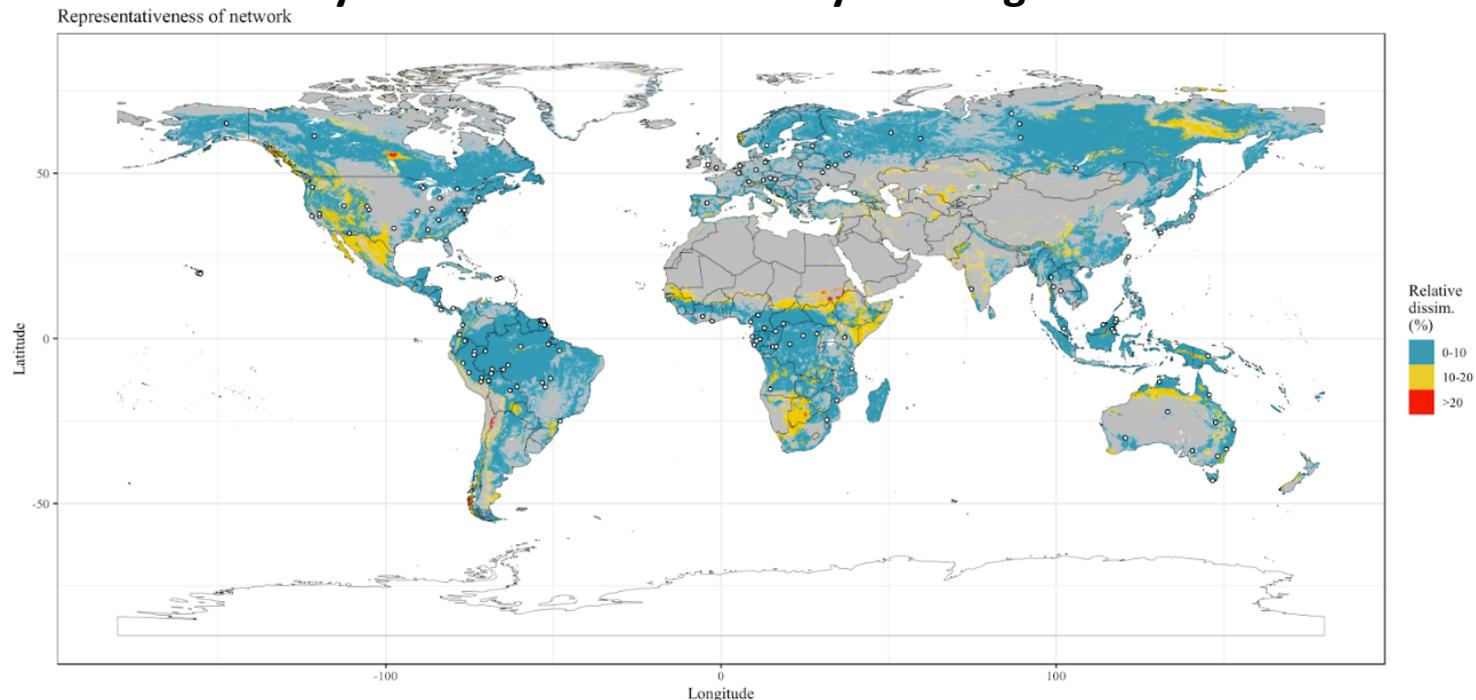
- SnowPEX-2: Tasks still in discussion
- ESA EE10 Candidate Mission GCLASS – geostationary C-band SAR, snow parameters: diurnal melt extent and changes, SWE accumulation

Upcoming Conferences:

- International Conference on Snow Hydrology – 28-31 Jan 2020, <https://snowhydro.eurac.edu/>
- EARSEL Special Interest Group of Land Ice and Snow LISSIG WS: 3-5 Feb 2020, Berne, <http://www.earsel.org/SIG/Snow-Ice/index.php>

Above Ground Biomass

- Protocol development / editing ongoing – focus on summary chapters and a chapter on ALS as reference data
- Multi-mission group still very active – constantly growing
- Australian biomass meeting planned, not LPV led; hosted by CSIRO and TERN
- New representativeness analysis of proposed biomass supersites has begun (see below from Nicolas Labriere); aim to have final site list for CEOS endorsement released with protocol delivery
- BRIX2 activity still being discussed; potentially will be implemented on the ESA/NASA MAAP
- **Protocol will be ready for 2020 SIT and Plenary meetings**



Land Cover

Tutorial Development

- Several tools and platforms developed for collecting sample data for area and map accuracy estimation
- AREA2 in Google Earth Engine, Collect Earth Online by NASA-SERVIR, Collect Earth/SEPAL by UN-FAO
- The user community is asking for more educational materials
- Effort planned with objective: develop tutorials to show how to use various tools together for common estimation objectives
- SilvaCarbon/WB/NASA/FAO
- Tutorial example:
https://area2.readthedocs.io/en/latest/example_str.html